

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 14 MAR 2006

WIPO

PCT

Applicant's or agent's file reference 63847A	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/US2004/043351	International filing date (day/month/year) 24.12.2004	Priority date (day/month/year) 24.12.2003	
International Patent Classification (IPC) or national classification and IPC C08L101/00, C08K5/14, C08K5/3435, C08G18/00			
Applicant DOW GLOBAL TECHNOLOGIES INC.			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 16 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). 4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input checked="" type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application			
Date of submission of the demand 22.07.2005	Date of completion of this report 15.03.2006		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Bergmans, K Telephone No. +31 70 340-		



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/043351

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-50 as originally filed

Claims, Numbers

1-41 as originally filed

Drawings, Sheets

1-23 as originally filed

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/043351

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☒ neither restricted nor paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-14 .

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-14
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/043351

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item IV

Lack of unity of invention

The examiner found that the application lacks unity within the meaning of Rule 13.1 PCT.

The common concept between claim 1 and the rest of the independent claims is a crosslinkable polymeric composition made out of a crosslinkable polymer and a crosslinking temperature profile modifier.

Document D1 (US6620892) discloses a crosslinkable polymeric composition made out of a crosslinkable polymer (polypropylene) and a crosslinking temperature-profile-modifier (TEMPO).

All the technical features of the common concept as indicated above are known from document D1. Therefore, the application lacks unity of invention within the meaning of Rule 13(1) PCT. The especial technical features according to rule 13 (2) PCT which provide a contribution over the prior art are not so linked to form a unitary inventive concept. Claim 1 defines a process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature). Claim 14 defines a process for preparing a crosslinked article by melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. Claim 15 defines a process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at a temperature above the nominal crosslinking temperature).

Claim 16 defines a process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature). Step A is characterised by (i) a nominal processing rate with the combination of the free-radical crosslinkable polymer and the free-radical inducing species (in absence of the crosslinking temperature-profile -modifier), and (ii) the crosslinking temperature-profile -modifier permits running the process at least 5% faster than the nominal processing rate. Claim 18 defines a process for preparing a crosslinked article comprising by melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. The nominal processing rate is the combination of the free-radical crosslinkable polymer and the free-radical inducing species (in absence of the crosslinking temperature-profile -modifier), and (ii) the crosslinking temperature-profile -modifier permits running the process at least 5% faster than the nominal processing rate. Claim 19 defines a process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (heat, shear or radiation) and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature). Claim 20 defines a process for preparing a crosslinked article by melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (heat shear or radiation) and a crosslinking temperature-profile-modifier. Claim 23 defines a process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature while maintaining TSI at least equal) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition.

Claim 24 defines a process for preparing a crosslinked article by melt processing (at melt processing temperature greater than the nominal melt processing temperature while maintaining TSI at least equal) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. Claim 27 defines a process for preparing an expanded crosslinked article by the steps of A) injecting an expandable free-radical crosslinkable polymeric composition in to a mold, wherein the expandable free-radical polymeric composition comprises a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier and a blowing agent selected from physical or chemical blowing agents, B) Heating the expandable free-radical crosslinkable polymeric composition, C) removing the expandable free-radical crosslinkable polymeric composition, D) expanding and crosslinking the expandable free-radical crosslinkable polymeric composition. Claim 28 defines a process for preparing an expanded crosslinked article by the steps of A) injecting an expandable free-radical crosslinkable polymeric composition in to a mold, wherein the expandable free-radical polymeric composition comprises a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier and a blowing agent, B) Heating the expandable free-radical crosslinkable polymeric composition, C) removing the expandable free-radical crosslinkable polymeric composition, D) expanding and crosslinking the expandable free-radical crosslinkable polymeric composition. Claim 29 defines an article prepared by the different processes disclosed. Claim 30 defines a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (melting point higher than 130 °C) and a crosslinking temperature-profile-modifier. Claim 31 defines a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (premature crosslinking) and a crosslinking temperature-profile-modifier. Claim 33 defines a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer and a crosslinking temperature-profile-modifier not being 2,2,6,6,-tetramethyl piperidinyloxy and the derivatives thereof. Claim 34 defines an expandable free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier, and a blowing agent (physical or chemical). Claim 35 defines a power cable comprising a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-70 wt%).

Claim 36 defines an power cable comprising a crosslinked insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-70 wt%). Claim 37 defines an power cable comprising a crosslinked flame retardant insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (10-85 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and flame retardant (15-70 wt%). Claim 38 defines an power cable comprising a crosslinked semi-conductive insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (10-85 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and conductive filler (20-40 wt%). Claim 39 defines an power cable comprising a crosslinked insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer e.g. LLDPE and a branched polyethylene (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-70 wt%). Claim 40 defines an power cable comprising a crosslinked jacked prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer e.g. chlorinated polyethylene (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-65 wt%). Claim 41 defines an shoe sole comprising a expandable crosslinked free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer e.g. ethylene unsaturated ester (10-85 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.01-5 wt%), and blowing agents (chemical or physical).

Therefore the different inventions lead to different results. Consequently, the present set of claims breaks up in twenty-two inventions as follows:

Claims 1-13 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature).

Claim 14 : A process for preparing a crosslinked article by melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier.

Claim 15 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at a temperature above the nominal crosslinking temperature).

Claims 16,17 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature). Step A is characterised by (i) a nominal processing rate with the combination of the free-radical crosslinkable polymer and the free-radical inducing species (in absence of the crosslinking temperature-profile -modifier), and (ii) the crosslinking temperature-profile -modifier permits running the process at least 5% faster than the nominal processing rate.

Claim 18 : A process for preparing a crosslinked article comprising by melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. The nominal processing rate is the combination of the free-radical crosslinkable polymer and the free-radical inducing species (in absence of the crosslinking temperature-profile -modifier), and (ii) the crosslinking temperature-profile -modifier permits running the process at least 5% faster than the nominal processing rate.

Claim 19 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (heat, shear or radiation) and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature).

Claims 20-22 : A process for preparing a crosslinked article by melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (heat shear or radiation) and a crosslinking temperature-profile-modifier.

Claim 23 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature while maintaining TSI at least equal) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition.

Claims 24-26 : A process for preparing a crosslinked article by melt processing (at melt processing temperature greater than the nominal melt processing temperature while maintaining TSI at least equal) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier.

Claim 27 : A process for preparing an expanded crosslinked article by the steps of A) injecting an expandable free-radical crosslinkable polymeric composition in to a mold, wherein the expandable free-radical polymeric composition comprises a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier and a blowing agent selected from physical or chemical blowing agents, B) Heating the expandable free-radical crosslinkable polymeric composition, C) removing the expandable free-radical crosslinkable polymeric composition, D) expanding and crosslinking the expandable free-radical crosslinkable polymeric composition.

Claim 28 : A process for preparing an expanded crosslinked article by the steps of A) injecting an expandable free-radical crosslinkable polymeric composition in to a mold, wherein the expandable free-radical polymeric composition comprises a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier and a blowing agent, B) Heating the expandable free-radical crosslinkable polymeric composition, C) removing the expandable free-radical crosslinkable polymeric composition, D) expanding and crosslinking the expandable free-radical crosslinkable polymeric composition.

Claim 29 : An article prepared by the different processes (claims 1,14,15,16,18,19,20,23,24,27,28).

Claim 30 : A free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (melting point higher than 130 °C) and a crosslinking temperature-profile-modifier. Claim 31 defines a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (premature crosslinking) and a crosslinking temperature-profile-modifier.

Claim 33 : A free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer and a crosslinking temperature-profile-modifier not being 2,2,6,6,-tetramethyl piperidinyloxy and the derivatives thereof.

Claim 34 : An expandable free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier, and a blowing agent (physical or chemical).

Claim 35 : An power cable comprising a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-70 wt%).

Claim 36 An power cable comprising a crosslinked insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-70 wt%).

Claim 37 : An power cable comprising a crosslinked flame retardant insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (10-85 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and flame retardant (15-70 wt%).

Claim 38 : An power cable comprising a crosslinked semi-conductive insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (10-85 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and conductive filler (20-40 wt%).

Claim 39 : An power cable comprising a crosslinked insulation prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer e.g. LLDPE and a branched polyethylene (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-70 wt%).

Claim 40 : An power cable comprising a crosslinked jacket prepared from a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer e.g. chlorinated polyethylene (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-65 wt%).

Claim 41 : An shoe sole comprising a expandable crosslinked free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer e.g. ethylene unsaturated ester (10-85 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.01-5 wt%), and blowing agents (chemical or physical).

There are twenty-two independent claims each one containing especial technical feature not linked by a common concept. Therefore, twenty-two different inventions can be identified. However, the examiner has grouped said twenty-two inventions in only eleven for the benefit of the applicant according to the following :

Claims 1-13,14 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature).

Claim 15 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at a temperature above the nominal crosslinking temperature).

Claims 16-18 : A process for preparing a crosslinked article comprising by melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. The nominal processing rate is the combination of the free-radical crosslinkable polymer and the free-radical inducing species (in absence of the crosslinking temperature-profile-modifier), and (ii) the crosslinking temperature-profile-modifier permits running the process at least 5% faster than the nominal processing rate.

Claims 19,20-22 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (heat, shear or radiation) and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition (at nominal crosslinking temperature).

Claims 23,24-26 : A process for preparing a crosslinked article comprising the steps A) melt processing (at melt processing temperature greater than the nominal melt processing temperature while maintaining TSI at least equal) of a crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, and a crosslinking temperature-profile-modifier. B) Forming an article and C) crosslinking the crosslinkable polymeric composition.

Claims 27,28 : A process for preparing an expanded crosslinked article by the steps of A) injecting an expandable free-radical crosslinkable polymeric composition in to a mold, wherein the expandable free-radical polymeric composition comprises a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier and a blowing agent selected from physical or chemical blowing agents, B) Heating the expandable free-radical crosslinkable polymeric composition, C) removing the expandable free-radical crosslinkable polymeric composition, D) expanding and crosslinking the expandable free-radical crosslinkable polymeric composition.

Claim 29 : An article prepared by the different processes (claims 1,15,16,18,19,23,27).

Claims 30-32 : A free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (melting point higher than 130 °C) and a crosslinking temperature-profile-modifier. Claim 31 defines a free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer (premature crosslinking) and a crosslinking temperature-profile-modifier.

Claim 33 : A free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer and a crosslinking temperature-profile-modifier not being 2,2,6,6,-tetramethyl piperidinyloxy and the derivatives thereof.

Claim 34,41 : An expandable free-radical crosslinkable polymeric composition comprising a free-radical crosslinkable polymer, a free-radical inducing species, a crosslinking temperature-profile-modifier, and a blowing agent (physical or chemical). A shoe sole made from the expandable free-radical crosslinkable polymeric composition.

Claims 35-40 : An power cable comprising a free-radical crosslinkable polymeric (flame retardant insulation, semi-conductive insulation, jacketed) composition comprising a free-radical crosslinkable polymer (20-90 wt%), a free-radical inducing species (0.5-10 wt%), a crosslinking temperature-profile-modifier (0.1-5 wt%), and inorganic fillers (10-70 wt%).

The applicant is asked to state upon which invention further prosecution of this application should be based and to limit the application accordingly.

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
Reference is made to the following documents:

D1: US6620892

D2 : EP1276119

Novelty (Art. 33 (2) PCT)

1. The document D1 discloses a method for the production of a controlled rheological polypropylene resin comprising a polypropylene polymer or EPDM, an organic peroxide, and a stabile radical (TEMPO) using melt processing methods.

The subject matter of claims 1-9,14 over D1 is considered to be not novel (Art. 33(2) PCT).

2. The document D2 discloses a composition comprising a resin binder made out of a thermosetting resin, organic peroxide and N-oxyl compound. The N-oxyl compound can optionally be blended with an other compound e.g. aromatic tertiary amines or quaternary ammonium salt. The composition further comprises polymerisation inhibitors. The subject matter of claims 1,5-14 over D2 is considered to be not novel (Art. 33(2) PCT).

Inventive step (Art. 33(3) PCT)

All the technical features of the present claims are described in D1. Therefore the claims 1 to 14 do not involve an inventive step (Art. 33(3) PCT).

Re Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in document D1 is not mentioned in the description, nor are this document identified therein.

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/US2004/043351

Re Item VIII

Certain observations on the international application

Clarity (Art. 6 PCT)

1. The claims of the present application are not supported by the description as required by Article 6 PCT. This inconsistency between the claims and the description leads to doubt concerning the matter for which protection is sought, thereby rendering the claims unclear.

2. Claim 4 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving this result.